Spatial Data Standards (for Facilities, Infrastructure, and Environment) Filter Maker

Overview

Because of the size and complexity of the SDSFIE / FMSFIE, Release 1.800 introduced the concept of a filter. A filter consists of a subset of the SDSFIE Features which more fully represent the needs of the user. Since these features are likely to cross Entity Set or Entity Class boundaries, the filter is used to define the collection of Features.

Within the SDSFIE/FMSFIE, a filter is coded at all levels, including Entity Set, Entity Class, Entity Type, Entity, Table, Domain, and Join. There are two critical constraints on the construction of the filter.

1 - If a given table is included in a filter, then all attributes in that table are included in the filter, and
2 - If a given list domain is included in a filter, the all values in that list domain are included in the filter.

The Filter Maker application allows individual users to build custom Filters which define a specific subset of the Features in the SDSFIE/FMSFIE, tailored to individual needs. It should be noted that, in building the filter, **modifications are made to the SDSFIE / FMSFIE Library files**. These modifications do not impact the performance or appearance of the SDSFIE/FMSFIE data, but rather allow the Browser to view and print this selected subset, as if no other features existed, and allow the Generator, Geomedia Builder, and Access Builder to build custom schemas, containing only that information related to the selected features. A Filter Eraser is included to undo any actions performed by the Filter Maker.

NOTE: That Version 2.000 of the SDSFIE/FMSFIE Filter Maker contains two important changes. First, the Filter Maker, Browser, Generator, Geomedia Builder, Access Builder, and Filter Eraser support up to 10 locally configured filters in any given Data Set. Second, the selection of Features included in the Filter Maker has been expanded to support a wider range of options. A number of lesser changes have been included such as allowing for the user to specify a Description for the Filter.

One of the more important characteristics of the Filter Maker software is that it examines the selected Features and includes all non-Graphic related tables such that the constructed schema will contain all of the tables necessary for consistent operations of the database. As an example, it will examine the feature and, if required, include any metadata, media, coordinate, or other tables which link to the included Feature. In this way, it is not necessary for the user to determine which tables must be included, but rather only to select the desired graphical features.

USING THE SDSFIE/FMSFIE Filter Maker

Step One - Connecting to the SDSFIE/FMSFIE Libraries

The first step in the construction of a Feature Filter is to locate and connect to the SDSFIE / FMSFIE Libraries. Unfortunately, early Releases of the TSSDS Data do not support filter operations so it is important that the connection established be to a valid SDSFIE/FMSFIE Release 1.800 (or later) data set.

The first screen is intended to allow the user to connect to the SDSFIE / FMSFIE data set in much

the same way as the SDS/FMS Browser and Generator connect to the data. Clicking on the {**Connect to SDSFIE Library**} Button displays a connection window which is very similar to the connection selection window in other SDSFIE /FMSFIE Software Applications. Once a valid SDSFIE/FMSFIE connection has been established, the Release number will be displayed in the upper left status panel and the {**Next -->**} button will be activated. See "The Connection Screen" for more details.

The {**Next -->**} and {**<-- Prior**} buttons function to move from screen to screen. Until a valid SDSFIE/FMSFIE Library has been designated, the {**Next -->**} button is 'grayed' and will not function.

NOTE: Once a valid SDSFIE connection has been established, the path to this connection is saved in the windows registry. See "Registry Keys" for more details. Once this information has been saved, it is reread each time the Filter Maker starts and the Release Panel is filled in with the Release number of the connected libraries.

Step Two - Reading the Contents of the SDSFIE/FMSFIE Library

The next step in the construction of a Feature Filter is to read the contents of the SDSFIE /FMSFIE Library and display the available options for the user. This step is new to Version 2.000. Since Release 2.000 of the SDSFIE/FMSFIE supports up to 10 locally configurable filters, the Filter Maker needs to know which of the filters should be edited/created in the Data Set.

The second screen is intended to display the contents of the selected SDSFIE/FMSFIE Data Set. Each of the up to 10 user maintained filters will be displayed on the screen, with an option button next to each. If all 10 filters have been used, only modification/edit is permitted. If less than 10 filters are included in the Data Set, one of the option button will be labeled "Create New Filter". Selecting this option will allow the user to build a brand new Filter exactly the same way as prior Filter Maker Versions.

The {**Next -->**} and {**<-- Prior**} buttons function to move from screen to screen. Until a valid option has been selected, the {**Next -->**} button is 'grayed' and will not function.

NOTE: Only one Filter may be modified/created at a time. Each one is handled independently, being modified and stored in the Data Set before another may be created and/or modified.

Step Three - Naming and/or Retrieving an Existing Filter

The next step in the construction of a Feature Filter is to name the Filter. The name of the filter is what will be displayed in the Filters Menu in the SDSFIE/FMSFIE Browser and what is displayed in the Custom Filter List in the SDSFIE/FMSFIE Generator. The name should be constructed to allow you to define and select the Filter in the SDSFIE/FMSFIE Software Applications.

If a User Filter has already been defined within the selected SDSFIE/FMSFIE Library, the name of that filter will be read and automatically inserted into the Filter Name text box. If you wish to change the name of the current filter, simply change the name in the text box.

The Filter Name may be up to 20 Characters in length and, while it may contain spaces, you should refrain from using special characters which may be confusing. Since the Name will

appear in an application Menu, the simpler and more identifyable the better. Once you have entered the name, it will be checked against the current list of Filter Names to ensure there is no duplication.

If you have previously created and saved Custom Filters, the {**Restore a Previous Filter**} button will open a file selection list box where you may select the saved or stored filter. Prior filter files have the file extension ".SDF". These files are transferrable between users so that if you have created a User Filter for your own use and wish to have a number of other users have the same filter, simply copy the SDF file to the other user's computer and load it into their Filter Maker.

The {**Next -->**} button will not be activated until a Name has been entered into the Filter Name text box.

NOTE: Any filter file selected will be tested for the proper format prior to permitting continuation of the program.

Step Four - Saving the results for Future Use

The third step in the construction of a Feature Filter is to determine whether the results of the process should be saved to a Spatial Data Filter (SDF) File. Under normal circumstances, the filter does not need to be saved, since the exact contents of the Filter are 'saved' or stored in the actual SDSFIE/FMSFIE Library files. However, if you desire to save the filter from one Release of the SDSFIE/FMSFIE to the next, or you intend to distribute the results of your filter to other members of your work group or command, then creating the SDF file is important.

The screen is allows the user to select whether the results should be saved by 'clicking' on the Save Check Box. While the saving of the file is not accomplished until the end of the process, whether or not to save the results and the location and name of the SDF file are determined here. A {**Save Filter File Name Assignment**} button is provided to facilitate the determination of the location and file name for the SDF file. This button displays a normal Save File Dialog. Once selected, the path and name of the file to contain the saved results is displayed in the Text Box.

The {**Next -->**} and {**<-- Prior**} buttons function to move from screen to screen. If the Save Filter check box is checked, the {**Next -->**} button will be grayed until a path and file name for saving the file has been entered into the File/Path text box.

NOTE: It is recommended that if you create a save file for the filter, that you put all of your SDF files in the same directory. This permits ease of selection for inclusion into the SDSFIE/FMSFIE.

Step Five - Selecting the Features in the Filter

The next step in the construction of a Feature Filter is to determine which SDSFIE features are to be included in the Filter. This new version of the SDSFIE / FMSFIE Filter Maker permits selection of features using a variety of techniques using the {**Select Features**} button. See "Techniques for Selecting Features". Since the SDSFIE/FMSFIE may vary in the actual features from Release to Release, these Features are read from the designated SDSFIE/FMSFIE Library determined in Step 1. While the features are being read and formated, a progress bar displays the status of the construction.

Following the construction of the feature list, what happens next is a function of the status of the Filter. If the Filter is one that already exists within the SDS/FMS Library, the existing Filter Features are read from the Library itself. While this is happening, the progress bar displays the

status. This process may take several minutes so please be patient. If the Filter is one that is being read from a saved SDF file, the inclusion of features will be read from the file. Again, the progress bar will indicate the status. If this is for the construction of a brand new filter, the List of Features will be immediately displayed in a CheckBox style List Box. Individual features may be selected from the List either by Double Clicking on the Feature or by clicking on the Check Box.

Once all features have been selected, clicking {**Next -->**} will move to the final step in the Filter construction.

NOTE: Features are named according to the Entity Names in the SDSFIE. The trailing letters are (_a, _b, etc) are removed and only one entry is made per specific entity. However, selecting an Entity will ensure that all of the required Entity Type/Entity Combinations are properly coded.

Step Six - Verification/Description

The final step in the construction of a Feature Filter is to verify the information provided in the prior screens. This is the last chance to alter any information (or return to previous screens) before the Filter Construction begins. On this screen, information regarding the Filter generation is displayed. It includes:

A - The Name of the Filter
B - The number of Features included in the Filter
C - Whether the Filter is to be saved and directory path/file name of the Spatial Data Filter save (SDF) file, and
D - An editable Description of the Filter which is displayed in the Browser.

If all of the displayed information is correct, then clicking on the {**Create**} button will begin the construction process. If any information is not correct, you may return to the indicated screen to change the information prior to creating the filter.

NOTE: This is the last chance to alter information regarding the filter.

The Connection Screen

Since filters actually reside within the SDSFIE / FMSFIE Library files, it is important that the Filter Maker know specifically which version or configuration of the SDSFIE / FMSFIE Library is desired. This is accomplished using the Connection Screen. This Screen contains a text box containing the path to the SDS/FMS Library Files and four buttons. The connection to the SDS/FMS Library occurs in much the same way as other SDS/FMS software.

Buttons
{**Connect, Test, and Save**} - This button examines the directory indicated in the displayed path to confirm that it is a valid SDSFIE / FMSFIE Library. If it is, the Connection Screen disappears and the connection path is changed to the tested Library.
{**Cancel**} - This button closes the Connection Screen but the prior SDS Path (or no path) is retained. In essence, all actions to connect are cancelled.
{**Help**} - Activates Windows Help and displays this screen.
{**Browse**} - Displays a Directory Selection Dialog (See Selecting a Directory)

Techniques for Selecting Features

Many users have expressed an interest in selecting features using a variety of techniques, include Entity Set, Entity Class, etc. Using the {Select Features}, a special Feature Selection Screen appears. This screen provides this increased capability. Possible selection techniques include:

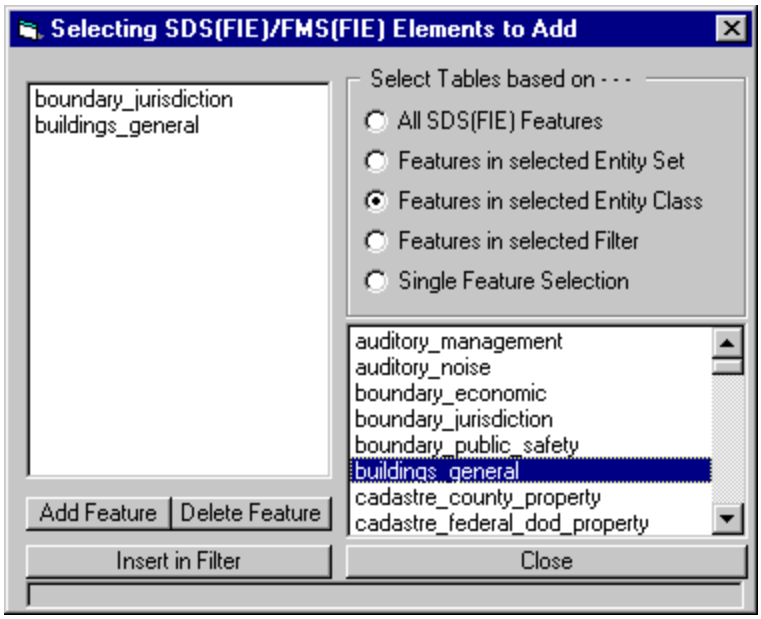

Figure 1 - Selecting Filter Features

A - All SDSFIE Features - This option selects (ckecks) all SDSFIE Features. It performs the same function as the "Select All Features" Button of earliers Filter Maker versions.

B - Features in selected Entity Set - This option selects those SDSFIE Features in the Entity Sets listed in the "Selection" List Box on the left of the Feature Selection Screen.

C - Features in selected Entity Class - This option selects those SDSFIE Features in the Entity Classes listed in the "Selection" List Box on the left of the Feature Selection Screen.

D - Features in selected Filters - This option selects those SDSFIE Features in the Filters listed in the "Selection" List Box on the left of the Feature Selection Screen. Note that using this option permits copying and modifying a previously constructed Custom Filter.

E - Single Feature Selection - This option select individual Features based on the Feature Name rather than the Entity Name.

NOTE: For each selection technique, the List Box on the lower right of the screen will fill with the list of permissible entries for the element; e.g. Entity Sets, Entity Classes, Filters, etc.

Buttons

{**Add Feature**} - This button moves the element selected in the right list box (possible values) to the "Selection" List Box on the left.
{**Delete Feature**} - This button deletes the element selected in the "Selection" List Box on the left from the list.
{**Insert in Filter**} - This button determines the entries required to accomplish the selection action, and ensures that these Entities are checked. Following the action, the Feature Selection Screen closes and control returns to the wizard.
{**Help**} - Activates Windows Help and displays this screen.
{**Close**} - Closes the Feature Selection Screen and returns to the wizard.

Registry Keys

Two pieces of information about the generation are retained in the Registry. These include:

The location (directory only) of the SDS/FMS Library. Saving this path in the registry permits the application to automatically reconnect to the Library each time the program is started.

KEY/VALUE - HKEY_LOCAL_MACHINE\SOFTWARE\Upper90\FilterBuilder\SDS

The location (directory and file name) of the last saved Filter. Saving this path and file name permits the application to automatically fill the Save File Name text box if the filter is redefined and is to be saved again.

KEY/VALYE - HKEY_LOCAL_MACHINE\SOFTWARE\Upper90\FilterBuilder\OutputPath

Note: The Registry is not only critical to the Filter Maker application, it is essential to Windows. It is extremely dangerous to take any action on the Registry without a complete knowledge of what is being done. Registry actions are **NOT RECOMMENDED**.

Spatial Data Standards (for Facilities, Infrastructure, and Environment) Filter Eraser

Overview

Because development of SDSFIE/FMSFIE Custom Filter(s) actually modifies the contents of the SDSFIE/FMSFIE Library, it is desirable to have some method of restoring the SDSFIE/FMSFIE Library files to their original condition, retaining any CADD/GIS Technology Center Filters, but removing any User Defined Custom Filter(s). The Filter Eraser removes any unwanted User Defined Custom Filter and potentiall restores the SDSFIE/FMSFIE Libraries to their original condition.

This small application reads the condition of the specified SDSFIE/FMSFIE Library and removes all references to the designated Custom Filter. In that the eraser makes no assumptions about the condition of the data, including whether or not a filter has actually been defined, it does not hurt the Library files to erase a filter at any time. **If no Custom Filters have been defined, the Filter Eraser has no net impact.**

Note: Since the Filter Eraser removes one or more filters from the Library files, it is important that the Filter be saved if retention of the filter is desired. If the filter has not been saved, **no record of the details of the filter will remain**.

Step One - Connecting to the SDSFIE/FMSFIE Libraries

The first step in the removal/erasure of a Feature Filter is to locate and connect to the SDSFIE/FMSFIE Libraries. Unfortunately, prior Releases of the SDSFIE Data do not support filter operations so it is important that the connection established be to a valid SDSFIE/FMSFIE Release 1.800 or subsequent data set.

The first screen is intended to allow the user to connect to the SDSFIE/FMSFIE data set in much the same way as the SDSFIE/FMSFIE Browser and Generator connect to the data. Clicking on the {**Connect to SDSFIE/FMSFIE**} Button displays a connection window which is very similar to the connection selection window in other SDSFIE/FMSFIE Software Applications. Once a valid SDSFIE/FMSFIE connection has been established, the Release number will be displayed in the upper left status panel and the {**Next -->**} button will be activated. See "The Connection Screen" for more details.

The {**Next -->**} and {**<-- Prior**} buttons function to move from screen to screen. Until a valid SDSFIE/FMSFIE Library has been designated, the {**Next -->**} button is 'grayed' and will not function.

StepTwo - Selecting the Filter(s) to Remove

The next step in the removal/erasure of any Feature Filters is to read the SDSFIE/FMSFIE Libraries and retrieve the names of any Custom Filters. The Custom Filter Name is stored in the TSSDSLIB.mda database in a tables called "DISCIPLINE". Custom Filters have a numeric code 0 through 9. The Filter Eraser will automatically retrieve this data and display the names of any included Filters with a Check Box. To remove the Filter, simply place a ☑ in the check box beside the desired Filter. One or more Filters may be removed in any single pass through the Library.

If no Filter Name appears, it is likely that the Library does not contain a Custom Filter reference.

If no Filter Name is retrieved, the {**Next -->**} button is not activated and a Dialog will indicate that no Custom Filters are installed.

BUTTON ACTIVATION: The {**Next -->**} button will not be activated until at least one check has been placed next to one of the Custom Filter Names.

StepThree - Verification

The final step in the removal/eraser of a Feature Filter is to verify the information provided in the prior screens. This is the last chance to alter any information (or return to previous screens) before the Filter Erasure begins. On this screen, information regarding the Filter Eraser is displayed.

If all of the displayed information is correct, then clicking on the {**Erase**} button will begin the construction process. If any information is not correct, you may return to the indicated screen to change the information prior to erasing the filter.

NOTE: It is still possible to activate the erasure process even if no evidence of a Custom Filter has been detected.